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plain that there is on the whole a continuous change (though not perfectly steady) in the point or area from which the maximum supply of meteors reaches us, but each point or area on the path thus taken by the maximum is active both before and afterwards. Taking up Mr. DENNING'S ephemeris, it may give the point from which the largest supply of meteors will probably come on the night in question, but meteors will be found coming from that point both before and afterwards — perhaps for several months. The whole problem is a very complicated one. The August *Perseids* do not appear to exhibit the periodicity which a cometary origin would lead us to expect. The swarm seems to be greatly broken up, and its present shape is probably one which our best mathematicians would be unable to deal with, even if it were accurately known. A good explanation of the ordinary phenomena of stationary radiation — *regarded not as exceptions, but as the almost invariable rule* — is what we require, in the first instance. Having got that, we may then inquire into the cause of the anomalous features presented by the *Perseids*. I am inclined to think that Mr. DENNING might have reduced his radiants to a somewhat smaller number than 278. But the classification of radiants is a matter of considerable difficulty. When a radiant is diffused there are often sub-radiants, and the distinction between such a sub-radiant and a neighboring diffused radiant is very slight. In this way some of the radiants which are referred to one center might with equal justice be referred to another. But considerations of this kind cannot affect the general result.

ELEMENTS OF COMET 1898 VIII (CHASE).

By ROGER SPRAGUE.

From CODDINGTON'S observations at Mt. Hamilton, 1898, November 23, and 1899, January 29, and KOBOLD'S observation at Strassburg, 1899, April 4, I have computed the following parabolic elements for Comet 1898 VIII (CHASE). The Mt. Hamilton observations were kindly furnished to the Students' Observatory by mail. The Strassburg observation was taken from the *Astronomische Nachrichten*, No. 3556, and used after applying a slight correction to the reduction to apparent place. In order to secure the greatest accuracy in the elements, especially in T and ω, the final values were derived by Professor LEUSCHNER'S Differential Formulæ (*Beiträge zur Kometenbahnbestimmung*, pages 28–29).

ELEMENTS.

$$T = \text{September } 20.073795 \text{ Gr. M. T.}$$

$$\left.\begin{array}{rrrl} i = & +22^{\circ} & 30' & 27''.3 \\ \Omega = & 95 & 51 & 25\,.2 \\ \omega = & 4 & 35 & 31\,.9 \end{array}\right\} 1899.0$$

$$\log q = 0.358758$$

$$\text{O}-\text{C}:\ \triangle\lambda \cos\beta = -\,1''.5;\ \triangle\beta = -\,1''.7$$

CONSTANTS TO THE EQUATOR OF 1899.0.

$$\begin{aligned} x^{1} &= [.3247374] \sin (190^{\circ}\ 55'\ 42''.00 + v) \sec^{2} \tfrac{1}{2} v \\ y^{1} &= [.3334251] \sin (109\ \ 15\ \ 29\,.25 + v) \sec^{2} \tfrac{1}{2} v \\ z^{1} &= [.0621375] \sin (\ 56\ \ 12\ \ 13\,.61 + v) \sec^{2} \tfrac{1}{2} v \end{aligned}$$

UNIVERSITY OF CALIFORNIA,
STUDENTS' OBSERVATORY, July 11, 1899.

(THIRTY-SIXTH) AWARD OF THE DONOHOE COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to Dr. LEWIS SWIFT, Director of the Lowe Observatory, for his discovery of an unexpected comet on March 3, 1899.

The Committee on the Comet-Medal,

J. E. KEELER,
WM. M. PIERSON,
CHAS. BURCKHALTER.

July 18, 1899.

PLANETARY PHENOMENA FOR SEPTEMBER AND OCTOBER, 1899.

BY MALCOLM MCNEILL.

SEPTEMBER.

Mercury is a morning star at the beginning of the month, rising nearly an hour and a half before sunrise. It comes to greatest west elongation on September 5th, and thereafter approaches the Sun, coming to superior conjunction on September 30th. It rises at least an hour before sunrise until the middle of the month.